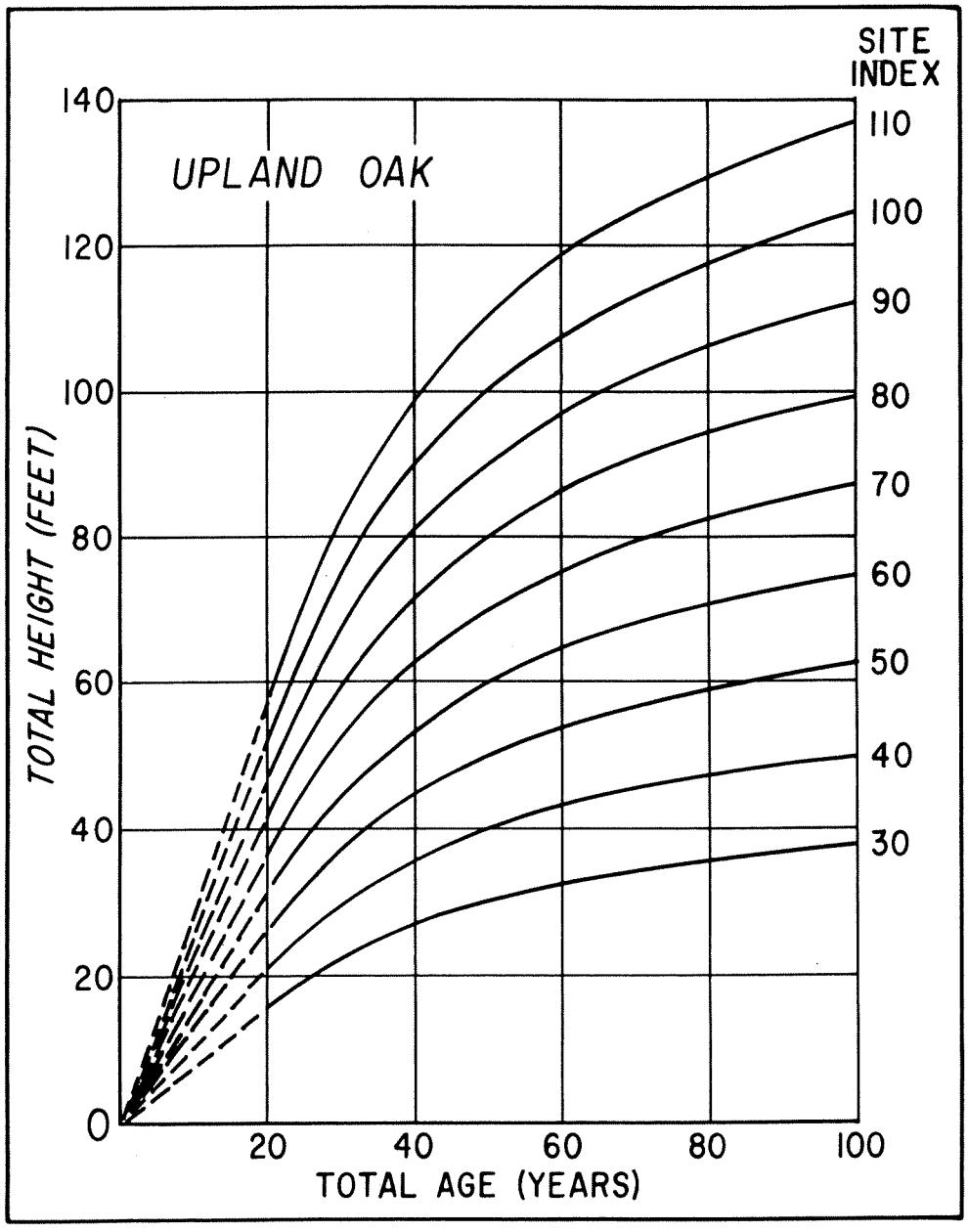
RESEARCH NOTES
SOUTHEASTERN FOREST EXPERIMENT STATION
Asheville, North Carolina

Number 125 April 1959

SITE INDEX CURVES FOR UPLAND OAK IN THE SOUTHEAST

These site index curves are based on 697 observations of height on age for white, northern red, southern red, scarlet, black, and chestnut oak in the Virginia-Carolina Piedmont and the Southern Appalachian Mountains. The curves were constructed using equations of the form, Log Height = a + b $\left(\frac{1}{\text{Age}}\right)$.



U. S. Department of Agriculture - Forest Service

Levels of Site Index Among the Oaks

The species data were analyzed separately, but were pooled because the slope coefficients (rates of height growth) showed no statistically significant differences. There were real differences in the a-intercept, however, reflecting different levels of mean site indices by species and regions. The individual equations and mean site indices are presented in table 1.

Table 1.--Site index relationships for upland oak

Oak species or group	Region	Plots	Mean site index	Site index equations 1/	
				a-intercept	Slope coefficient (b)
		Number	Feet		
Chestnut	Mountains	105	58	1.953	2/ -9.5639
White	Mountains	54	60	1.968	
Scarlet	Mountains	167	65	2.001	
Black	Mountains	60	68	2.022	
Northern red	Mountains	42	72	2.049	
White-southern red	Piedmont	133	69	2.028	
Black	Piedmont	59	72	2.052	
Scarlet-northern red	Piedmont	77	78	2.082	

1/ Logarithm total height = a + b (reciprocal of total age).
2/ Constant for all equations.

The mean site indices in the Piedmont are somewhat higher than the mean site indices for the same species in the mountains. Within regions, the species levels in table 1 are significantly different. The practicing forester will have to assess his reasons for taking oak site index data in order to plan field work. If mean oak yield tables are to be used, an average of height and age for all oak species on a plot will suffice. If there is interest in the potential of a particular oak species, the data should be stratified by species. In either case, the upland oak site index curves can be used.

The sites encountered in this study made it possible to extend the site curves beyond the upper limit of 85 feet presented by Schnur.1/ A number of the plots had site indices over 85 feet and some had site indices over 100 feet.

1/ Schnur, G. Luther. Yield, stand, and volume tables for even-aged upland oak forests. U. S. Dept. Agr. Tech. Bul. 560. 1937.

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